

Exploratory querying of the Dutch Georegisters

with the purpose
of further integration with other sources

by Stanislav Ronzhin

&

Rob Lemmens

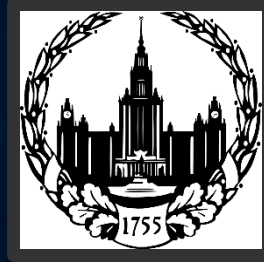
Goals for today

- To introduce Exploratory Querying
- To present SPEX, a tool for Exploratory Querying in space and time
- To demonstrate SPEX in action

About myself..

Stanislav Ronzhin

- 2002-2007



- 2008 - 2013



<http://frecom.ru/>



- 2013-2015



A pathetic fallacy of RDF

http://bag.kadaster.nl/id/verblijfsobject/0546010000066356	http://bag.kadaster.nl/def#hoofdadres	http://bag.kadaster.nl/id/nummeraanduiding/0546200000066506
http://bag.kadaster.nl/id/verblijfsobject/0546010000066356	http://bag.kadaster.nl/def#identificatiecode	"546010000066356"
http://bag.kadaster.nl/id/verblijfsobject/0546010000066356	http://bag.kadaster.nl/def#ingangsdatum	"2014-01-15 00:00:00"
http://bag.kadaster.nl/id/verblijfsobject/0546010000066356	http://bag.kadaster.nl/def#ingangsdatum	"2014-12-23 00:00:00"

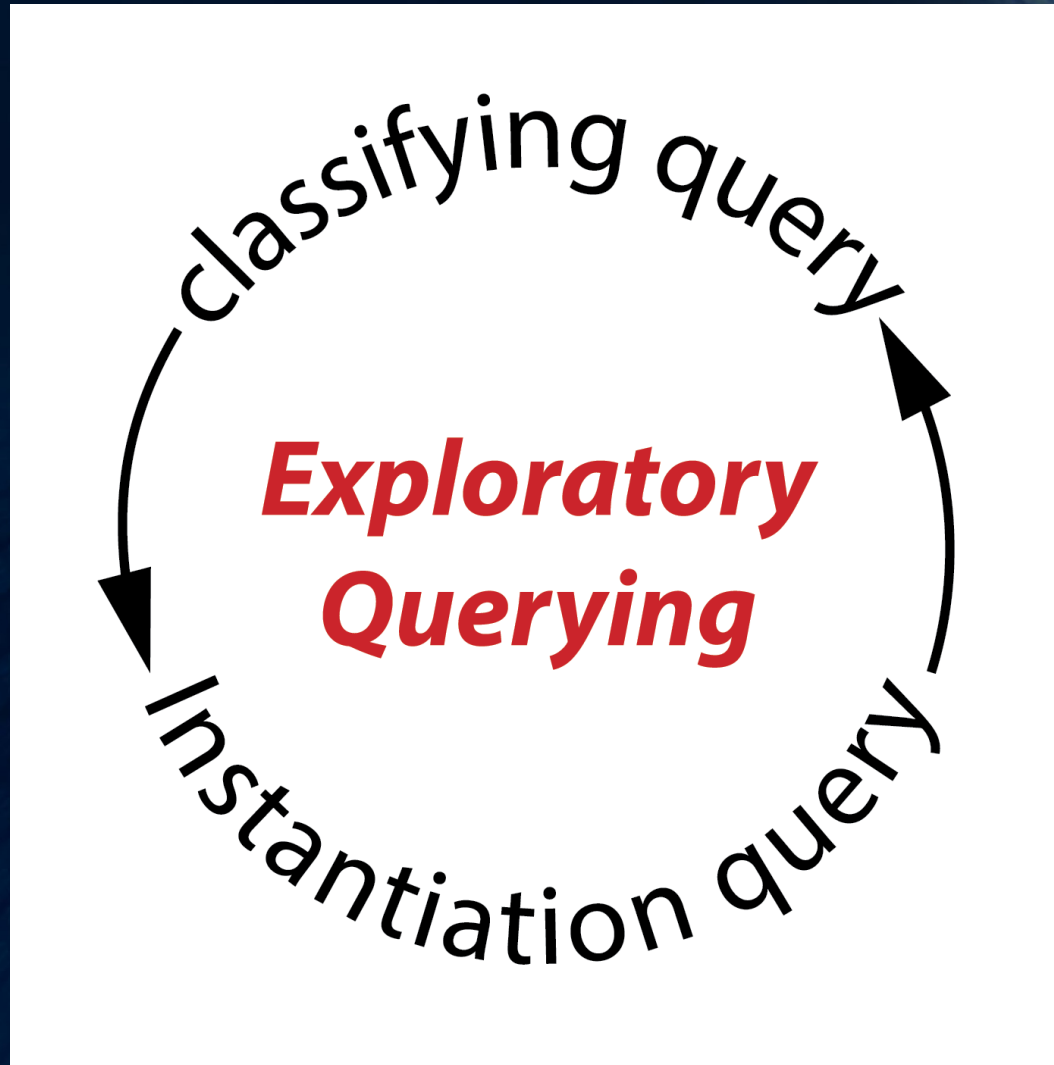
http://bag.kadaster.nl/id/verblijfsobject/0546010000066356	http://bag.kadaster.nl/id/geopunt/0546010000010361>
http://bag.kadaster.nl/id/verblijfsobject/0546010000066356	a geo:Geometry ;
http://bag.kadaster.nl/id/verblijfsobject/0546010000066356	geo:asWKT "POINT(4.4884836692629 52.15424662225)"
http://bag.kadaster.nl/id/verblijfsobject/0546010000066356	207338
http://bag.kadaster.nl/id/verblijfsobject/0546010000066356	207339 <http://bag.kadaster.nl/id/geovlak/0546100000037837>
http://bag.kadaster.nl/id/verblijfsobject/0546010000066356	a geo:Geometry ;
http://bag.kadaster.nl/id/verblijfsobject/0546010000066356	207340 geo:asWKT "POLYGON((4.4908207602714 52.161484471351,4.4904915027953 52.161456163737,4.4905090134988 52.161456163737,4.4904915027953 52.161484471351,4.4908207602714 52.161484471351))"
http://bag.kadaster.nl/id/geovlak/0546100000004	207341

Racefietsen example

- Frame material
- No of gears
- Brakes
-



Exploratory Querying



Exploratory Querying software

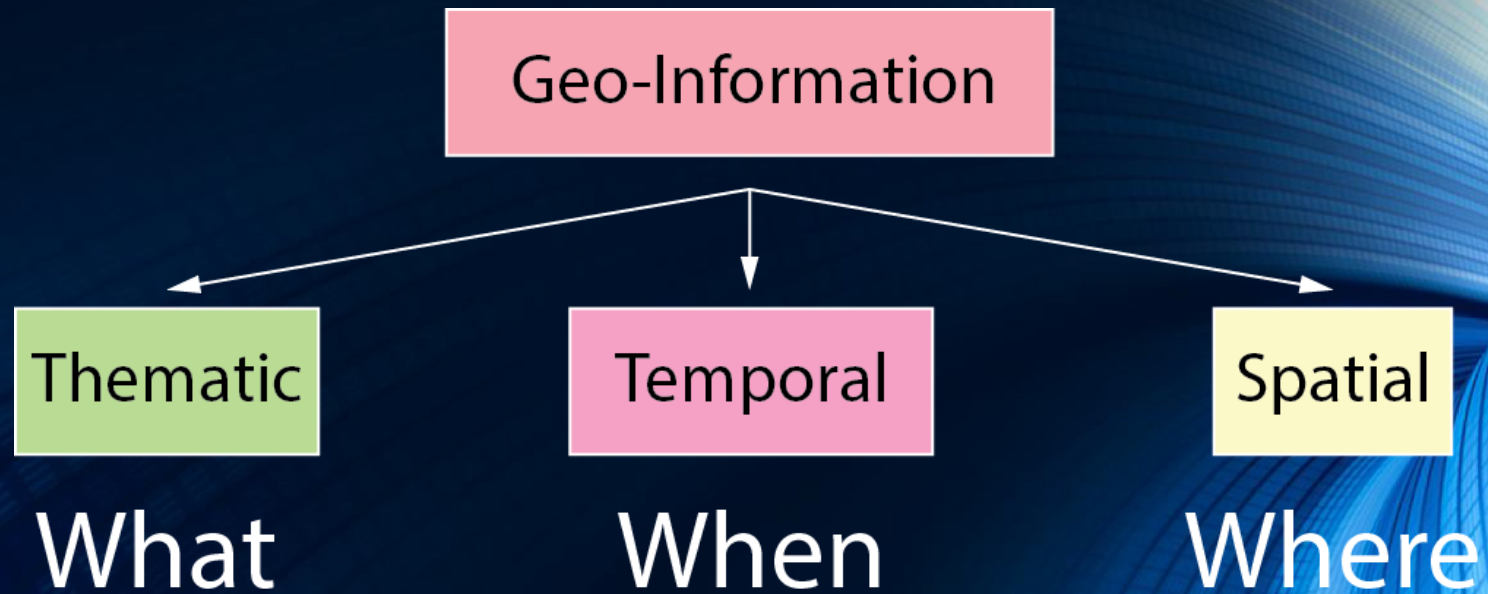
Faceted browsers:

- LESS
- RelFinder
- gFacet
- RDF Gravity
- Tabulator
- Rhizomer

Visual SPARQL clients:

- LodLive
- NITELIGHT
- IsaViz (SPARQLViz)
- ViziQuer
- OpenLink iSPARQL
- Sgvizler
- QueryVOWL
- Visualbox
- SparqlFilterFlow

Exploratory Querying of spatio-temporal data



Exploratory Querying of spatio-temporal data

bagGeopun
"POINT(4.4

bagWoon
bag:wo

bagPand: <http://www.bp4mc2.org/>
bag:bouwjaar 1650 ,
bag:ingangsdatum "2010-08-26T00:00:00".



here

what

when

SPEX - Spatio-temporal Content Explorer

[illegible]

Scheider, S., Degbelo, A., Lemmens, R., van Elzakker, C., Zimmerhof, P., Kostic, N., Jones, J., & Banhatti, G. (2015, in publishing). Exploratory querying of SPARQL endpoints in space and time. Semantic Web journal.

Who are the users?

- Data managers, (geo) information professionals, non-experts (with a little help)
- Who want to understand the content of data for further use/integration
- Unexperienced semantic web/SPARQL users

Emergency management use case

- Browser for triplified and enriched Ushahidi data

SPEX Spatio-temporal content explorer

Endpoint:

Graph structure:

```
graph LR; A((? moac:UshahidiReport)) -- dc:subject --> B((? moac:HospitalOperating))
```

Map locations: Talcahuano, Concepción, Coronel, Los Angeles, Chile.

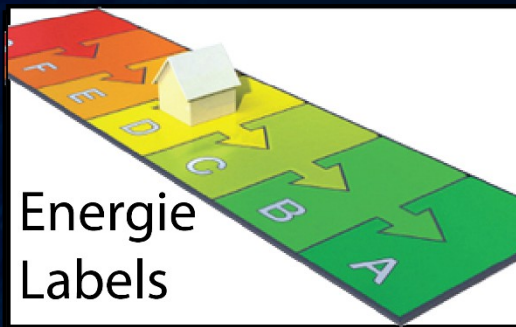
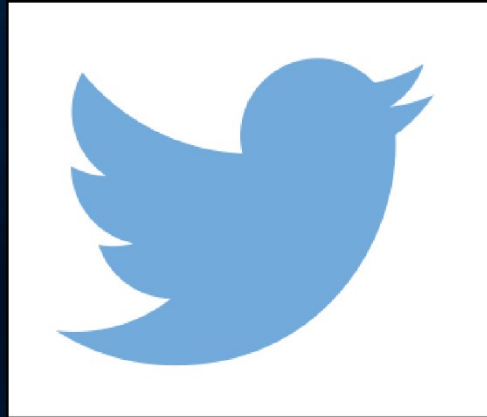
Search results (I am looking for: moac:HospitalOperating):

- moac:CompromisedBridge
- moac:HospitalOperating
- moac:InfrastructureDamage
- moac:RoadBlocked
- moac:ServiceAvailable
- moac:UnstableStructure

Results (11): [download results as JSON](#)

?moac:UshahidiReport	?moac:HospitalOperating
Report 4672	Hospital de Talca
Report 4349	Hospital Guillermo Grant Benavente
Report 4349	Hospital Traumatólogo
Report 4349	Hospital de Coronel

Use case: BAG + HuizenZoeker + Energie labels




To sum up

- *Exploratory Querying* – simultaneously learning about the information needed while specifying it
- *SPEX* is a prototype tool for Exploratory Querying in space and time
- *For those* who want to know the content of data for further use/integration

Future development

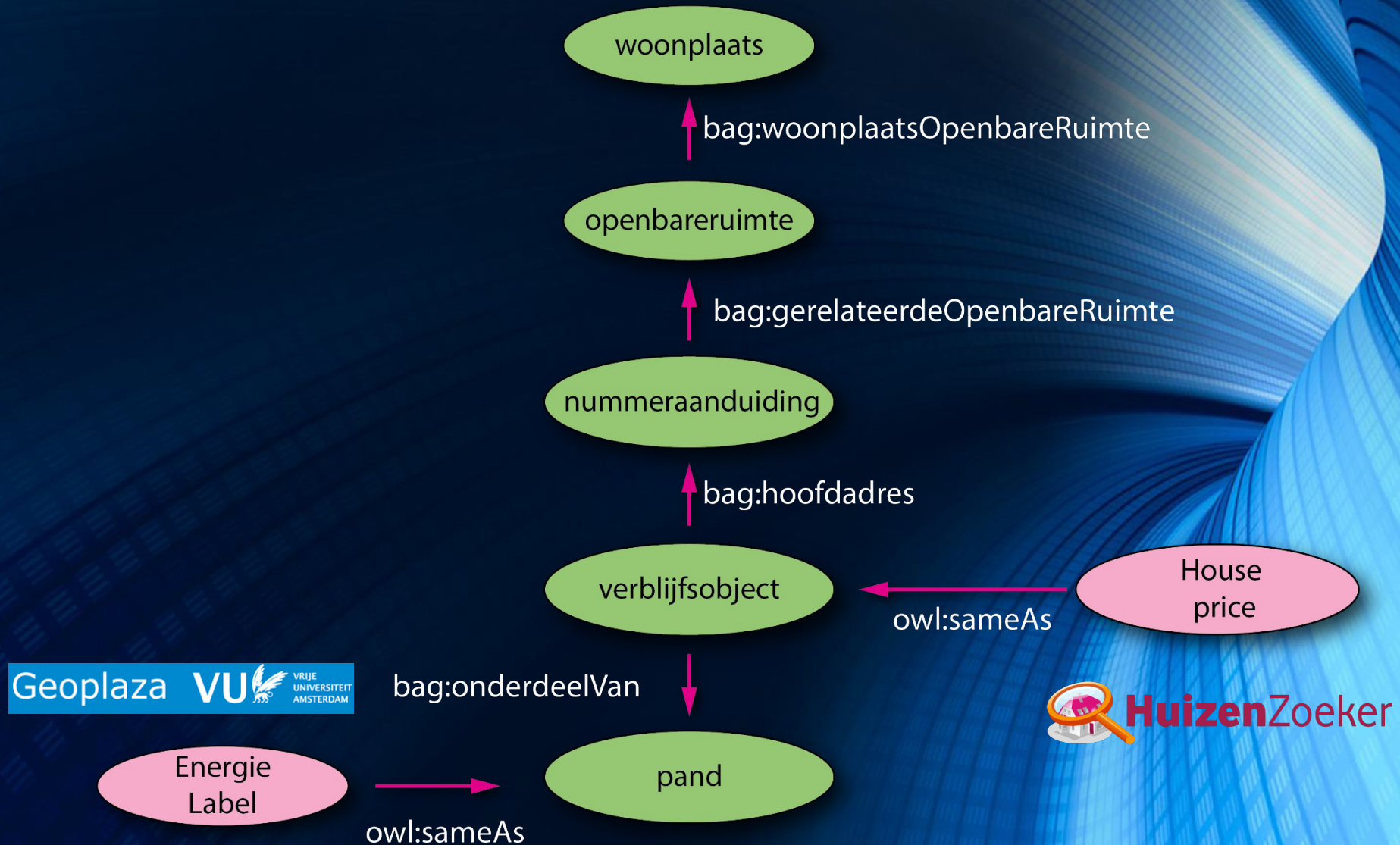
- Develop workflow that would embed SPEX
- Named Graph support, k-Nearest Neighbor query, functionality for data extraction



Thank you!
Questions!?

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StanRonzhin@gmail.com


Use case: BAG + HuizenZoeker + Energie labels



Query to select all the verblijfsobjecten with their area in a neighborhood of interest

SPEX Spatio-temporal content explorer

Endpoint: <http://localhost:8080/parliament/sparql>



Map view showing a neighborhood with many blue location pins. Labels on the map include 'Peterswijk', 'Commanderijpoort', and 'SALOM'. Mapbox © OpenStreetMap Improve this map

Clear Map Clear Timeline

September 2015

Results (170): [download results as JSON](#)

?bag:Verblijfsobject	?var1
0546010000011413	57
0546010000054939	64
0546010000054939	75
0546010000011414	134
0546010000011414	220

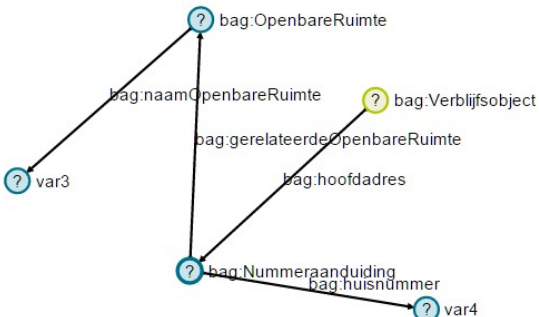
Query:

```
SELECT
DISTINCT
*
WHERE {
?var0 a bag:Verblijfsobject.
?var0 bag:oppervlakte ?var1.
?var0 geo:hasGeometry/maps:mapsArea ?var0__geom.
?var0__geom geo:asWKT|geo-1-0:asWKT ?var0__wkt.
OPTIONAL
}
```



Query to select all the verblijfsobjecten with their addresses in a neighborhood

SPEX Spatio-temporal content explorer

Endpoint:



```
graph TD
    var3((var3)) -- "bag:naamOpenbareRuimte" --> OR((bag:OpenbareRuimte))
    OR -- "bag:gerelateerdeOpenbareRuimte" --> OR2((bag:OpenbareRuimte))
    OR2 -- "bag:hoofdadres" --> VO((bag:Verblijfsobject))
    OR2 -- "bag:Nummeraanduiding" --> NA((bag:Nummeraanduiding))
    NA -- "bag:huisnummer" --> var4((var4))
```



Clear Map Clear Timeline

September 2015

Results (141): [download results as JSON](#)

?bag:Verblijfsobject	?bag:Nummeraanduiding	?bag:OpenbareRuimte	?var3	?var4
0546010000010610	0546200000010610	0546300000001581	Zonneveldstraat	1
0546010000055195	0546200000055195	0546300000000279	Commanderijpoort	8
0546010000011412	0546200000011412	0546300000000279	Commanderijpoort	1
0546010000011414	0546200000011414	0546300000000279	Commanderijpoort	6
0546010000011412	0546200000011412	0546300000000279	Commanderijpoort	2

Query:

```
SELECT
DISTINCT
*
WHERE {
?var0 a bag:Verblijfsobject.
?var0 bag:hoofdadres ?var1.
?var1 a bag:Nummeraanduiding.
?var1 bag:gerelateerdeOpenbareRuimte ?var2.
?var1 bag:huisnummer ?var4.
?var2 a bag:OpenbareRuimte.
```